Interactions of Chlorpyrifos and Herbicides Applied to Peanut (*Arachis hypogaea* L.)

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Experiments were conducted from 2004 through 2006 in North Carolina to determine peanut injury, pod scarring, pod yield, and percentages of extra large kernels (%ELK), fancy pods (%FP), and total sound mature kernels (%TSMK) following chlorpyrifos applied as a granular at pegging or as emulsifiable concentrate applied preplant incorporated (PPI) in mixture with pendimethalin. In one experiment, preemergence (PRE) herbicides consisted of *S*-metalochlor, *S*-metalochlor plus diclosulam, and *S*-metalochlor plus flumioxazin following chlorpyrifos. In a separate experiment, the postemergence (POST) herbicides acifluorfen, acifluorfen plus bentazon, imazapic, and paraquat plus bentazon were applied when peanut diameter was 10 to 15 cm. Chlorpyrifos did not interact with diclosulam or flumioxazin applied PRE or with the POST herbicides acifluorfen, acifluorfen plus bentazon, imazapic, or paraquat plus bentazon with respect to visual injury and pod yield. Applying chlorpyrifos at pegging was more effective than PPI applications in reducing pod scarification caused by southern corn rootworm (*Diabrotica undecimpunctata* Howardi) feeding. Although PRE and POST herbicides injured peanut in a manner consistent with standard application of these herbicides, pod yield, %ELK and %TSMK were not affected by early season injury. However, pod yield was lower in the experiment with POST herbicides when chlorpyrifos was applied PPI compared with granular application at pegging. No differences in pod yield, %ELK, %FP, and %TSMK were noted when comparing PPI and pegging applications of chlorpyrifos in the PRE herbicide experiment.

Keywords: Integrated pest management, peanut pegging, pesticide interaction, southern corn rootworm

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